



Thyristor Modules

Liujing rectifier co., Ltd.

V_{RSM}	V_{RRM} V_{DRM}	$I_{TRMS} = 920A$ (maximum value for continuous operation)		
V	V	$I_{TAV} = 500A$ (sin.180; $T_c = 89^\circ C$)		
900	800	SKKT 500/08E	SKKH 500/08E	
1300	1200	SKKT 500/12E	SKKH 500/12E	
1500	1400	SKKT 500/14E	SKKH 500/14E	
1700	1600	SKKT 500/16E	SKKH 500/16E	
1900	1800	SKKT 500/18E	SKKH 500/18E	

Symbol	Conditions	Values	Units
I_{TAV}	sin. 180; $T_c = 85(100)^\circ C$;	540 (390)	A
I_D	P16/200F; $T_a = 35^\circ C$; B2 / B6	665 / 845	A
I_{RMS}	P16/200F; $T_a = 35^\circ C$; W1 / W3	850 / 3 * 670	A
I_{TSM}	$T_{vj} = 25^\circ C$; 10ms	17000	A
	$T_{vj} = 130^\circ C$; 10ms	15000	A
i_{Tt}	$T_{vj} = 25^\circ C$; 8, 3 ...10ms	1445000	A ² S
	$T_{vj} = 130^\circ C$; 8, 3 ...10ms	1125000	A ² S
V_T	$T_{vj} = 25^\circ C$; $I_T = 1500A$	max. 1.5	V
$V_{T(TO)}$	$T_{vj} = 130^\circ C$	max. 0.925	V
r_T	$T_{vj} = 130^\circ C$	max. 0.27	m Ω
$I_{DD}; I_{RD}$	$T_{vj} = 130^\circ C$; $V_{RD} = V_{RRM}$; $V_{DD} = V_{DRM}$	max. 100	mA
t_{gd}	$T_{vj} = 25^\circ C$; $I_G = 1A$; $di_G/dt = A/\mu s$	1	μs
t_{gr}	$V_D = 0.67 * V_{DRM}$	2	μs
$(di/dt)_{cr}$	$T_{vj} = 130^\circ C$	max. 200	A/ μs
$(dv/dt)_{cr}$	$T_{vj} = 130^\circ C$	max. 1000	V/ μs
t_q	$T_{vj} = 130^\circ C$	250	μs
I_H	$T_{vj} = 25^\circ C$; typ./max	150 / 500	mA
I_L	$T_{vj} = 25^\circ C$; $R_G = 33\Omega$; typ./max	300 / 2000	mA
V_{GT}	$T_{vj} = 25^\circ C$; d.c.	min. 3	V
I_{GT}	$T_{vj} = 25^\circ C$; d.c.	min. 200	mA
V_{GD}	$T_{vj} = 130^\circ C$; d.c.	max. 0.25	V
I_{GD}	$T_{vj} = 130^\circ C$; d.c.	max. 10	mA
$R_{th(j-c)}$	cont.; per thyristor/per module	0.062 / 0.031	K/W
$R_{th(j-c)}$	sin. 180; per thyristor/per module	0.065 / 0.032	K/W
$R_{th(j-c)}$	rec. 120; per thyristor/per module	0.07 / 0.035	K/W
$R_{th(j-c)}$	per thyristor/per module	0.02 / 0.01	K/W
T_{vj}		- 40...+ 130	$^\circ C$
T_{stg}		- 40...+ 130	$^\circ C$
V_{isol}	a. c. 50Hz; r.m.s.; 1s/1min	3600 / 3000	V~
M_s	to heatsink	5 \pm 15% ¹⁾	Nm
M_t	to terminal	12 \pm 15% ²⁾	Nm
a		5 * 9.81	m/s ²
m	approx.	1420	g
Case	SKKT	LJ4	

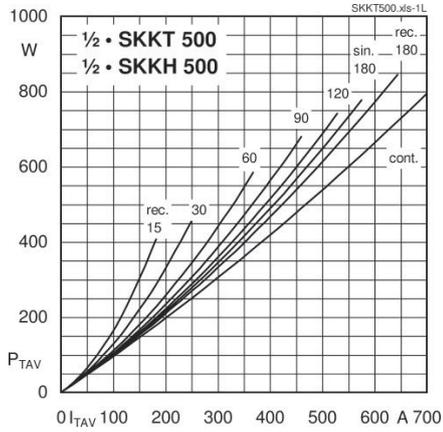


Fig. 1L Power dissipation per thyristor vs. on-state current

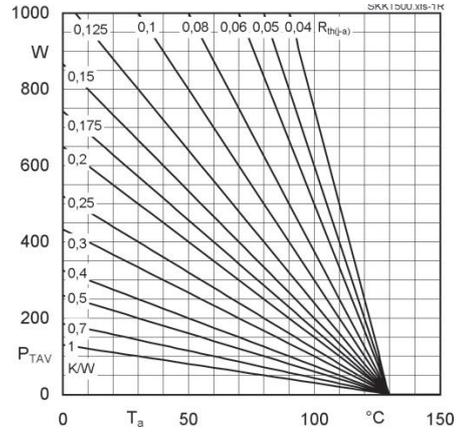


Fig. 1R Power dissipation per thyristor vs. ambient temp.

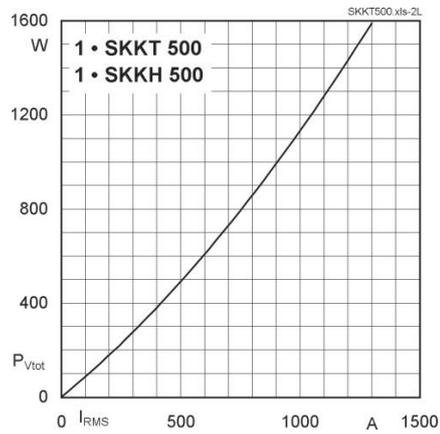


Fig. 2L Power dissipation per module vs. rms current

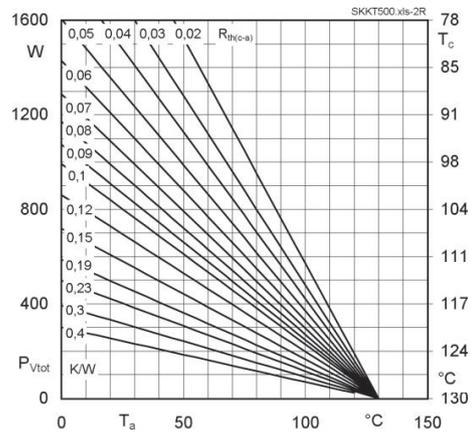


Fig. 2R Power dissipation per module vs. case temp.

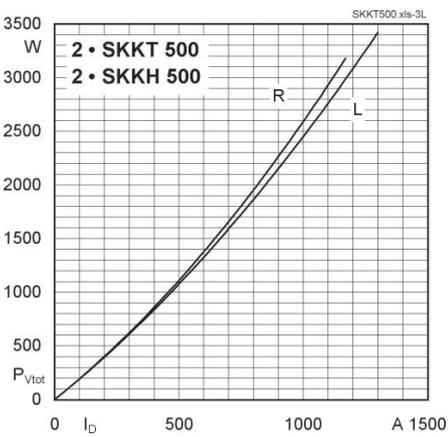


Fig. 3L Power dissipation of two modules vs. direct current

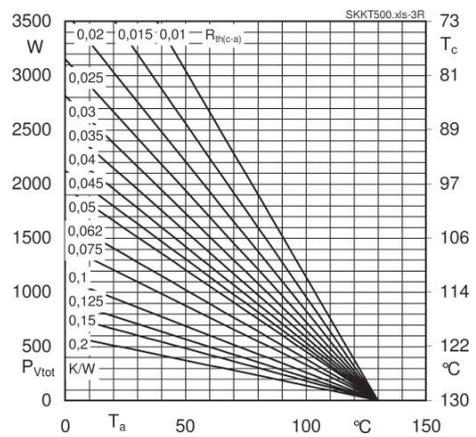


Fig. 3R Power dissipation of two modules vs. case temp.

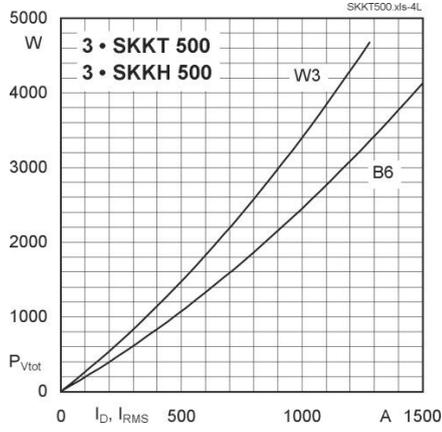


Fig. 4L Power dissipation of three modules vs. direct and rms current

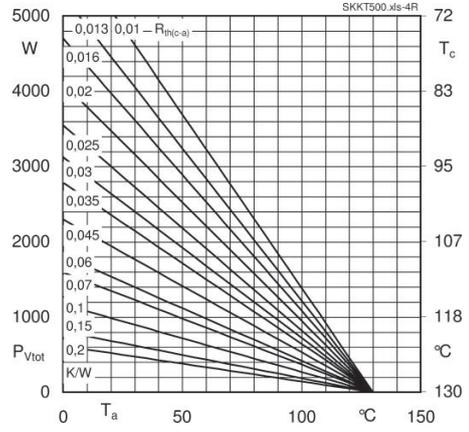


Fig. 4R Power dissipation of three modules vs. case temp.

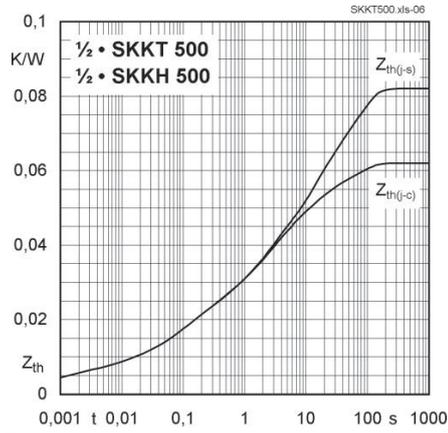


Fig. 6 Transient thermal impedance vs. time

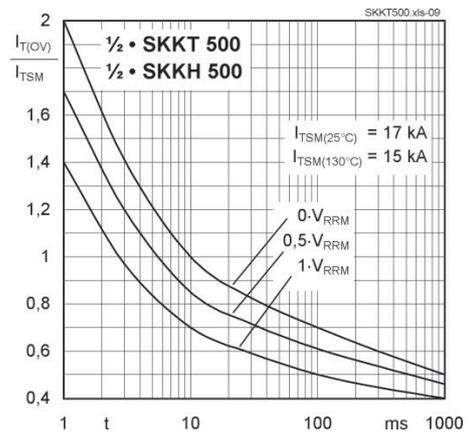


Fig. 8 Surge overload current vs. time

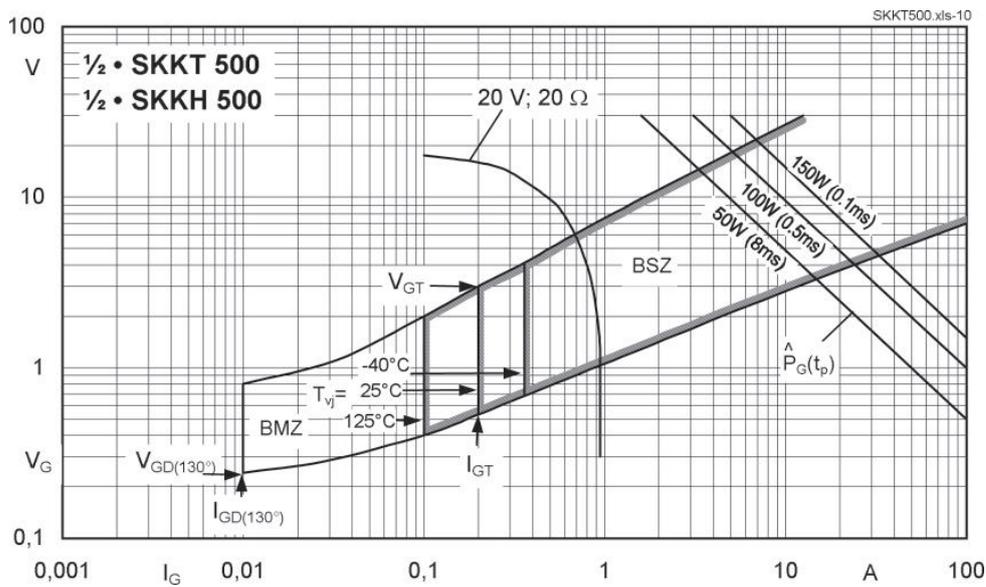
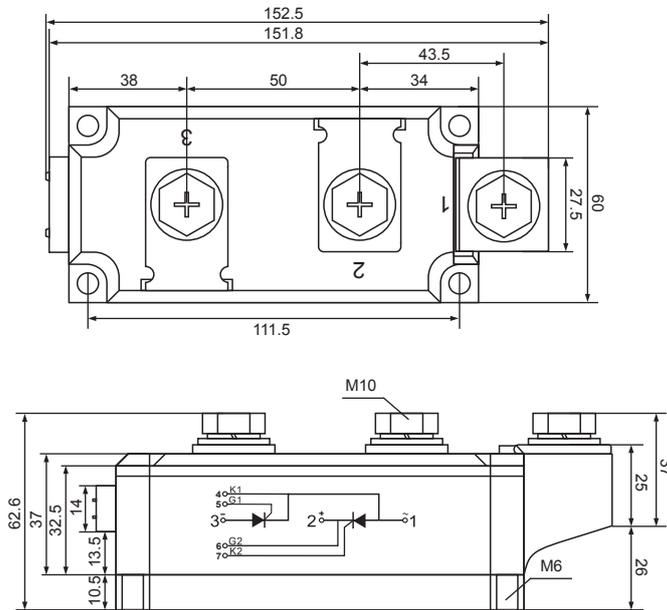


Fig. 9 Gate trigger characteristics



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